REMARKS/ARGUMENTS

Favorable reconsideration of this application in view of the remarks below and the amendments to the claims and the specification is respectfully requested.

In the specification, paragraphs on pages 5, 6 and 11 have been amended to incorporate generic terminology with the trademarks used in the specification. While Applicants believe the proprietary nature of the trademarks was respected in the specification as filed, the amendments have been made in order to conform to the requirements of the Examiner.

Claims 1-13 remain in this application. Claims 1 and 3 have been amended as more fully discussed below.

Claims 1-13 are rejected under 35 USC 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The basis of the rejection is the use of several phrases including "at a level up to about", "at a level of at least about" and "fewer that about", as well as certain constituents of a Markush listing. These rejections are discussed serially below.

The terms "at a level up to about" and "at a level of at least about" in claim 1 have been amended by incorporating the suggestion of the Examiner.

The term "fewer than about" in claim 3 has been amended by deleting the term "about".

The Examiner asserts that the Markush listing of anionic surfactants in claim 9 renders the claim vague and indefinite since not all of the surfactants listed are anionic. This rejection is respectfully traversed.

More specifically, amine oxides have a polarized nature with an anionic portion. March Exhibit1). Soaps are by definition, salts of a higher fatty acid with an alkali or metal. See Hackh's Chemical Dictionary Exhibit 2. Thus they have anionic properties. Similarly, betaines are dionic compounds (March, Exhibit 3). Since all the surfactants listed have anionic properties they are considered anionic surfactants and are property included in claim 9 as written. Reconsideration of this rejection is respectfully requested.

Claims 1, 5-10, 12 and 13 are rejected under 35 USC 102(b) as being anticipated by Tanner, U.S. Patent No. 3,749,682. The basis of this rejection is that Tanner discloses a detergent composition that is encompassed by the claims of the instant invention. This rejection is respectfully traversed.

Claim 1 of the instant application requires that the nonionic surfactants have a cloud point of less than 60° C. The nonionic surfactant used in Example 13 of Tanner is nonylphenol-11-ethylene oxide. It has a cloud point greater than 60° C. as can be seen from the enclosed technical bulletin. (Exhibit 4) This bulletin shows that nonylphenol-10-ethylenle oxide (one ethylene oxide unit smaller that the example in Tanner) has a cloud point of

ca 60° C and that nonylphenol-14 ethylene oxide has a cloud point of ca. 94° C. Since the cloud point rises with the increasing length, the Tanner surfactant cannot have a cloud

point below 60° C. Thus the Tanner example is not encompassed by the claimed compositions of the instant application.

Tanner also does not recognized the criticality of the ratio of anionic to ionic surfactants as called for in the instant claims. Accordingly Tanner does not either teach or suggest the instant claimed invention. Reconsideration of this rejection is respectfully requested.

Should the Examiner believe that a telephone call would narrow any outstanding issues or favorably advance the prosecution of this application, he is respectfully invited to call the undersigned at the telephone number indicated below.

Respectfully submitted,

Barbara V. Maurer
Registration Number 31,278
BASF Corporation
3000 Continental Drive-North
Mount Olive, NJ 07828-1234
(973) 426-3638

EXHIBIT 1

ADVANCED ORGANIC CHEMISTRY

REACTIONS, MECHANISMS, AND STRUCTURE

FOURTH EDITION

Jerry March

Professor of Chemistry
Adelphi University

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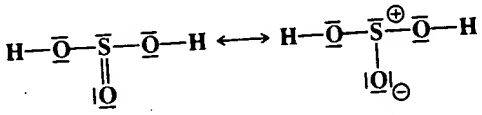
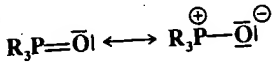
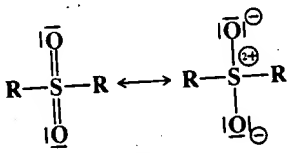
overlap of parallel p orbitals). However, there is another type of double bond that is particularly common for the second row atoms, sulfur and phosphorus. For example, such a double bond is found in the compound H_2SO_3, as written on the left. Like an ordinary



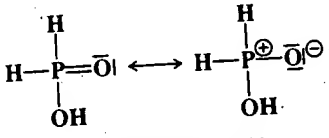
double bond, this double bond contains one σ orbital, but the second orbital is not a π orbital formed by overlap of half-filled p orbitals; instead it is formed by overlap of a filled p orbital from the oxygen with an empty d orbital from the sulfur. It is called a $p\pi$–$d\pi$ *orbital*.[49] Note that we can represent this molecule by two canonical forms but the bond is nevertheless localized, despite the resonance. Some other examples of $p\pi$–$d\pi$ bonding are



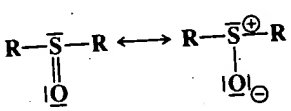
Phosphine oxides



Sulfones



Hypophosphorous acid

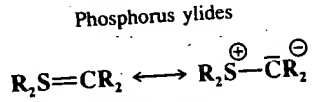


Sulfoxides

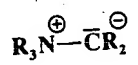
Nitrogen analogs are known for some of these phosphorus compounds, but they are less stable because the resonance is lacking. For example, amine oxides, analogs of phosphine oxides, can only be written $R_3\overset{\oplus}{N}—\overset{\ominus}{O}$. The $p\pi$–$d\pi$ canonical form is impossible since nitrogen is limited to eight outer-shell electrons.

In all the examples given above the atom that donates the electron pair is oxygen and, indeed, oxygen is the most common such atom. But in another important class of compounds, called *ylides*, this atom is carbon.[50] There are three main types of ylides—phosphorus,[51]

Phosphorus ylides



Sulfur ylides



Nitrogen ylides

[49]For a monograph, see Kwart; King *d-Orbitals in the Chemistry of Silicon, Phosphorus, and Sulfur*; Springer: New York, 1977.

[50]For a monograph, see Johnson *Ylid Chemistry*; Academic Press: New York, 1966. For reviews, see Morris, *Surv. Prog. Chem.* **1983**, *10*, 189-257; Hudson *Chem. Br.* **1971**, *7*, 287-294; Lowe *Chem. Ind.* (*London*) **1970**, 1070-1079. For a review on the formation of ylides from the reaction of carbenes and carbenoids with heteroatom lone pairs, see Padwa; Hornbuckle *Chem. Rev.* **1991**, *91*, 263-309.

[51]Although the phosphorus ylide shown has three R groups on the phosphorus atom, other phosphorus ylides are known where other atoms, e.g., oxygen, replace one or more of these R groups. When the three groups are all alkyl or aryl, the phosphorus ylide is also called a *phosphorane*.

EXHIBIT 2

HACKH'S CHEMICAL DICTIONARY

[*American and British Usage*]

Containing the Words Generally Used in Chemistry, and Many of the Terms Used in the Related Sciences of Physics, Astrophysics, Mineralogy, Pharmacy, Agriculture, Biology, Medicine, Engineering, etc.

Based on Recent Chemical Literature

FOURTH EDITION

Completely Revised and Edited by

JULIUS GRANT

M.SC., PH.D., F.R.I.C. CHEMICAL CONSULTANT

McGRAW-HILL BOOK COMPANY

New York San Francisco Toronto London Sydney

snow. A crystalline, finely divided form of water. **carbon dioxide-** Dry Ice. Frozen carbon dioxide obtained by rapid evaporation of liquid carbon dioxide; temperature —110; a refrigerant, sometimes mixed with ether. **nitrous oxide-** The s. formed by the rapid evaporation of liquid nitrous oxide.

Snyder reagent. 4,7-Dihydroxy-1,10-phenanthroline. A reagent for ferrous iron (stable red compound).

soap. A salt of a higher fatty acid with an alkali or metal. Soaps exist in 2 microcrystalline forms, viz., hexagonal plates and curd fibers, and in 3 types of solution, viz., isotropic solutions (including lyes and nigre), and neat and middle soaps, the 2 latter being conic, anisotropic "liquid crystal" forms. **castile-** A s. made from sodium carbonate and olive oil. **essence of-** An alcoholic s. solution, used in pharmacy. **green-** S. liniment. **hard-** An ordinary s., made with soda, giving a poor lather. **invert-** q.v. **marine-** Salt water s. **medicinal-** Sapo mollis. A soft s. that yields not less than 44.0% fatty acids (U.S.P., B.P.). **metallic-** The salts of heavy metals with oleic, stearic, palmitic, erucic, and lauric acids. Used as paint and ink driers (Pb, Co, Mn), and fungicides (Cu, Hg); for decolorizing varnish (Zn, Fe, Ni, Co, Cr), and waterproofing textiles (Al, Mg), and leather. **middle-** A phase sometimes formed in s. boiling at concentrations intermediate between those of neat s. and isotropic solutions. A conic, anisotropic, plastic solution, darker in color than neat s... **neat-** The upper layer in the s. pan; an anisotropic solution (63% fatty acid for sodium, and 40% fatty acid for potassium, soaps). **potash-** A soft s. made with potassium hydroxide. **salt water-** S. containing caproic, caprylic, capric, and myristic acids. not readily precipitated by Ca^{++} and Mg^{++} ions; made from coconut oil. **soda-** A hard s. made with sodium hydroxide. **soft-** Potash s. **toilet-** S. containing 70% or more of fatty and resin acids. **transparent-** S. made transparent by adding methyl alcohol. **white curd-** S. made from tallow.

s. bark. Quillaia. **s. liniment.** Green s. A solution of soft s. in 70% alcohol, containing camphor and rosemary oil or lavender oil (U.S.P.). **s. root.** Saponaria. **s. tree.** Quillaia. **s. wort.** Saponaria.

soapstone. Talc.

sobita. Bismuth sodium tartrate.

Sobrero, Ascanio. 1812–1888. Italian discoverer of nitroglycerin (1847). Cf. *Nobel.*

sobrerol. Pinol hydrate.

sobrerone. Pinol.

soda. Sodium carbonate. **baking-** Sodium bicarbonate. **caustic-** Sodium hydroxide (solution). **chlorinated-** Sodium hypochlorite. Sal-sodium carbonate. **scotch-** An impure grade of sodium carbonate. **sesqui-** A molecular mixture of $NaHCO_3$ and Na_2CO_2. **washing-** Sodium carbonate.

s. alum. A double salt of aluminum and sodium sulfates. **s. ash.** Commercial anhydrous sodium carbonate (99% Na_2CO_3). Used widely in industry. World production (1966) 20.5 million tons. **s. feldspar.** Albite. **s. lime.** (1) See *sodium hydroxide with lime.* (2) A mixture of calcium and sodium hydroxides (U.S.P.). **s. mint.** Compound *sodium bicarbonate.* **s. niter.** Native sodium nitrate. **s. powder.** B-powder. An early blasting powder made from Chile saltpeter glazed with graphite to prevent deliquescence. **s. process.** (1) A method of manufacturing sodium carbonate. See *Le Blanc.* (2) See *soda pulp.* **s. pulp.** Paper pulp obtained by digesting chipped wood with sodium hydroxide at about 7 atm pressure. **s. slag.** A slag obtained in the desulfurization of pig iron: chalcedony 35, sodium oxide 22, sulfur 7 pts.; used in bottle glass melts to oxidize the sulfides. **s. water.** A beverage made by injecting carbon dioxide into a solution of sodium carbonate Cf. aerated *waters.*

sodalite. $Na_4Al_3Si_3O_{12}Cl$. A silicate that contains salt.

sodamide. Sodium amide.

Soddy, Frederick. 1877–1956. British chemist, Nobel Prize winner (1921); noted for his researches on radioactive elements.

sodic. Containing sodium (obsolete).

sodii. Official Latin for "of sodium."

sodiomalonic. Sodium malonic.

sodion. Sodium ion: Na^+.

sodium. Na = 22.990. Natrium. An alkali-metal element, at. no. 11. A tetragonal, crystalline, soft metal, silvery white when freshly cut; rapidly dulling in air; stored under coal oil. Becomes brittle at low temperature, $d_{15°}$0.9732, m.97, b.880, decomp. by water, insoluble in alcohol or ether. Isolated by Davy (1807). Used as a dehydrating agent, flux, reactor coolant, reducing agent, conductor in cables; and in organic synthesis. **radio-** The isotope of mass 24, half-life 15.5 hours, formed from s. by bombardment with deuterons; decomposes to magnesium with emission of β rays (electrons).

s. abietate. $C_{20}H_{29}O_2Na$(?). The s. salt of abietic acid, produced when rosin is saponified for use as a size for paper. See *colophony.* **s. abietinate.** S. sylvate. **s. acetate.** CH_3COONa = 82.0. Colorless, monoclinic crystals, m.58, soluble in water. Used as a mordant, reagent for alkaloids; for filling thermophores; and in photography, and the manufacture of acetic acid, acetic ether, and pigments. *hydrated-* $NaC_2H_3O_2 \cdot 3H_2O$ = 136.07.d Colorless, monoclinic crystals, m.58, soluble in water. **s. acetotungstate.** $Na_2(CH_3CO)WO_4$ = 337.0. S. acetwolframate. White crystals, soluble in water; a microscope reagent. **s. acetrizoate.** $C_9H_5NI_3NaNO_5$. A radiopaque, used as the injection (U.S.P., B.P.). **s. acetsulfanilate.** $C_6H_4 \cdot (SO_3Na) \cdot NH \cdot COMe$ = 223.0. Cosaprin. Green crystals, soluble in water. **s. acetwolframate.** S. acetotungstate. **s. acetyl arsanilate.** $NaAsO_2 \cdot C_6H_4 \cdot NHCOCH_3$ = 264.1. Yellow crystals. **s. acetyl salicylate.** $C_2H_3O \cdot OC_6H_4COONa$ = 202.06. Hydropirin, Pyranol; used medicinally. **s. agaricinate.** Colorless powder, soluble in water; used medicinally. **s. alginate.** The sodium salt of alginic acid; a protective colloid for pharmaceuticals and cosmetics. **s. alizarin sulfonate.** $NaC_{14}H_5O_2(OH)_2SO_3$ = 342.1. Alizarin carmine. Orange powder, soluble in water; a dye, and indicator for strong acids (yellow) and strong alkalies (violet), except carbonates. **s. alum.** Aluminum s. sulfate. **s. aluminate.** $Na_2Al_2O_4$ = 164.2. Colorless powder, m.1850, soluble in water. **s. aluminum chloride.** $2NaCl,AlCl_3$ = 383.7. Colorless

EXHIBIT 3

ADVANCED ORGANIC CHEMISTRY

REACTIONS, MECHANISMS, AND STRUCTURE

FOURTH EDITION

Jerry March

Professor of Chemistry
Adelphi University

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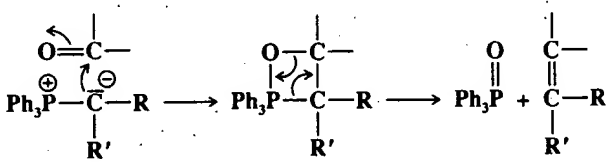
This method, sometimes called the *Horner–Emmons, Wadsworth–Emmons,* or *Wittig–Horner reaction*,[658] has several advantages over the use of phosphoranes.[659] These ylides are more reactive than the corresponding phosphoranes, and when R′ is an electron-withdrawing group, these compounds often react with ketones that are inert to phosphoranes. In addition, the phosphorus product is a phosphate ester and hence soluble in water, unlike Ph_3PO, which makes it easy to separate it from the olefin product. Phosphonates are also cheaper than phosphonium salts and can easily be prepared by the *Arbuzov reaction*:[660]

$$(EtO)_3P + RCH_2X \longrightarrow (EtO)_2\overset{\overset{O}{\|}}{P}-CH_2R$$

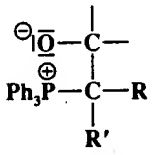
Ylides formed from phosphinoxides $Ar_2\overset{\overset{O}{\|}}{P}CHRR'$, phosphonic acid bisamides $(R'_2N)_2POCHRR'$,[661] and alkyl phosphonothionates $(MeO)_2PSCHRR'$[662] share some of these advantages. Phosphonates $Ph_2POCH_2NR'_2$ react with aldehydes or ketones R^2COR^3 to give good yields of enamines $R^2R^3C{=}CHNR'_2$.[663]

The mechanism[664] of the key step of the Wittig reaction is as follows:[665]



Oxaphosphetane

For many years it was assumed that a diionic compound, called a *betaine*, is an intermediate on the pathway from the starting compounds to the oxaphosphetane, and in fact it may be



Betaine

[658]For reviews, see Wadsworth *Org. React.* **1977,** *25*, 73-253; Stec *Acc. Chem. Res.* **1983,** *16*, 411-417; Walker, in Cadogan, Ref. 638, pp. 156-205; Dombrovskii; Dombrovskii *Russ. Chem. Rev.* **1966,** *35*, 733-741; Boutagy; Thomas *Chem. Rev.* **1974,** *74*, 87-99.

[659]For a convenient method of carrying out this reaction, see Seguineau; Villieras *Tetrahedron Lett.* **1988,** *29*, 477, and other papers in this series.

[660]Also known as the *Michaelis–Arbuzov rearrangement*. For reviews, see Petrov; Dogadina; Ionin; Garibina; Leonov *Russ. Chem. Rev.* **1983,** *52*, 1030-1035; Bhattacharya; Thyagarajan *Chem. Rev.* **1981,** *81*, 415-430. For related reviews, see Shokol; Kozhushko *Russ. Chem. Rev.* **1985,** *53*, 98-104; Brill; Landon *Chem. Rev.* **1984,** *84*, 577-585.

[661]Corey; Kwiatkowski *J. Am. Chem. Soc.* **1968,** *90*, 6816; Corey; Cane *J. Org. Chem.* **1969,** *34*, 3053.

[662]Corey; Kwiatkowski *J. Am. Chem. Soc.* **1966,** *88*, 5654.

[663]Broekhof; van der Gen *Recl. Trav. Chim. Pays-Bas* **1984,** *103*, 305; Broekhof; van Elburg; Hoff; van der Gen *Recl. Trav. Chim. Pays-Bas* **1984,** *103*, 317.

[664]For a review of the mechanism, see Cockerill; Harrison, Ref. 209, pp. 232-240. For a thorough discussion, see Vedejs; Marth *J. Am. Chem. Soc.* **1988,** *110*, 3948.

[665]It has been contended that another mechanism, involving single electron transfer, may be taking place in some cases: Olah; Krishnamurthy *J. Am. Chem. Soc.* **1982,** *104*, 3987; Yamataka; Nagareda; Hanafusa; Nagase *Tetrahedron Lett.* **1989,** *30*, 7187. A diradical mechanism has also been proposed for certain cases: Ward; McEwen *J. Org. Chem.* **1990,** *55*, 493.

EXHIBIT 4

Technical Bulletin

Iconol™ NP-10 Nonylphenol Ethoxylate

Iconol NP-10 is a water-soluble nonionic surfactant composed of a 10-mole ethylene oxide adduct of nonylphenol.

Applications:
The Iconol NP series of surfactants can be used as emulsifiers, wetting agents, dispersants, synthetic latex stabilizers and detergents in formulating cleaning products. They are also widely used as primary emulsifiers for acrylic and vinyl emulsion polymerization and for asphalt emulsion systems.

Iconol NP nonylphenol ethoxylates are chemically stable and effective over a wide pH range and in electrolyte solutions.

Standard packaging:
55-gallon, non-returnable steel drum (470 pounds net, 510 pounds gross)

Shelf Life:
BASF will endorse the results on the certificate of analysis for a period of up to two years from the date of manufacture for material in original, unopened, properly stored containers. Beyond two years, we recommend the quality of the material be confirmed prior to use, by retesting the certificate of analysis parameters.

Please refer to the Material Safety Data Sheet (MSDS) for this product for instructions on safe and proper handling and disposal.

Specifications	
Cloud point (1% aqueous °C)	60 – 65
pH (1% aqueous)	5 – 8
Water, weight %	0.3 max.
Color, APHA	50 max.

Typical physical properties	
Form at 25°C	Liquid
Average molecular weight	650
Specific gravity, 25°/25°C	1.06
Viscosity, cps at 25°C	250
Pour point	9°C
Surface tension (0.1% aqueous)	32 dynes/cm at 25°C
HLB	13.5

Iconol is a trademark of BASF Corporation

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